

SEQUENCE LISTING

<110> Huang, Shi
Chadwick, Robert B.

<120> Methods of Detecting and Treating
Microsatellite-Instability Positive Tumors Using RIZ

<130> P-LJ 5101

<150> US 60/256,582
<151> 2000-12-19

<160> 15

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Met His Gln Asn Thr Glu
1 5
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Arg Gly Leu Pro Glu Glu Val Arg Leu Phe Pro Ser Ala Val Asp Lys
25 30 35
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Thr Arg Ile Gly Val Trp Ala Thr Lys Pro Ile Leu Lys Gly Lys Lys
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Phe Gly Pro Phe Val Gly Asp Lys Lys Lys Arg Ser Gln Val Arg Asn
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Asn Val Tyr Met Trp Glu Val Tyr Tyr Pro Asn Leu Gly Trp Met Cys

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Trp Ala Cys Ser Gly Glu Glu Gln Asn Leu Phe Pro Leu Glu Ile Asn
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Arg Ala Ile Tyr Tyr Lys Thr Leu Lys Pro Ile Ala Pro Gly Glu Glu
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Leu Leu Val Trp Tyr Asn Gly Glu Asp Asn Pro Glu Ile Ala Ala Ala
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Ile Glu Glu Glu Arg Ala Ser Ala Arg Ser Lys Arg Ser Ser Pro Lys
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Ser Arg Arg Gly Lys Lys Ser His Glu Asn Lys Asn Lys Gly Ile
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Arg Thr His Pro Thr Gln Leu Lys Ala Ser Glu Leu Asp Ser Thr Phe
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Pro Leu Ala Ser Ala Pro Glu Gln Pro Ala Pro Leu Pro Glu Val Gly
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Asn Gln Asp Ala Val Pro Gln Val Ala Ile Pro Leu Pro Ala Cys Glu
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cac tgt gaa aga aaa ttt gca acg aag cag ggg cta gag cgt cac atg His Cys Glu Arg Lys Phe Ala Thr Lys Gln Gly Leu Glu Arg His Met 360 365 370	1278
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gaa gtt aaa gaa ctt cat ccg tgc aaa tac tgc aaa aag gta ttt gga Glu Val Lys Glu Leu His Pro Cys Lys Tyr Cys Lys Lys Val Phe Gly 475 480 485	1614
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cag cca cca gca gag cag gct cca ccc tcc cag aat gtc tat gtc cca Gln Pro Pro Ala Glu Gln Ala Pro Pro Ser Gln Asn Val Tyr Val Pro 520	525	530	1758	
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gac att tct agc aac atc tct gaa aac cta aat tac tat att gac ggt Asp Ile Ser Ser Asn Ile Ser Glu Asn Leu Asn Tyr Tyr Ile Asp Gly 555	560	565	1854	
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ctg agc ata tcc aca gcc gag gtg gtg tcc ttc cat aaa gag aag ggc Leu Ser Ile Ser Thr Ala Glu Val Val Ser Phe His Lys Glu Lys Gly 665	670	675	2190	
gtc tat ttg tcg tcc aag ctc aag cag ctt ctt cag acc cag gac aag Val Tyr Leu Ser Ser Lys Leu Lys Gln Leu Leu Gln Thr Gln Asp Lys 680	685	690	2238	
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Pro Val Cys Ala Ser Ala Pro Ala Ser Met Leu Pro Val Thr Ser Ser
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Arg Phe Lys Arg Arg Thr Ser Ser Pro Pro Ser Ser Pro Gln His Ser
730 735 740

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760 765 770

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Asp Ser Pro Ala Trp Ser Leu Ser Gly Arg Asp Glu Arg Glu Thr Gly
775 780 785 790

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Ser Pro Pro Cys Phe Asp Glu Tyr Lys Ile Ser Lys Glu Trp Ala Ala
795 800 805

agt tct act ttc agc agt gtg tgc aac caa cag cca ttg gat tta tcc 2622
Ser Ser Thr Phe Ser Ser Val Cys Asn Gln Gln Pro Leu Asp Leu Ser
810 815 820

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Ser Gly Val Lys Gln Lys Ser Glu Gly Thr Gly Lys Thr Pro Val Pro
825 830 835

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Trp Glu Ser Val Leu Asp Leu Ser Val His Lys Lys Pro Cys Asp Ser
840 845 850

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855 860 865 870

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Lys Lys Pro Thr Thr Cys Met Leu Gln Lys Val Leu Leu Asn Glu
875 880 885

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Tyr Asn Gly Val Ser Leu Pro Thr Glu Thr Thr Pro Glu Val Thr Arg
890 895 900

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Ser Pro Ser Pro Cys Lys Ser Pro Asp Thr Gln Pro Asp Pro Glu Leu
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Val Val Gly Pro Ser Ser Pro Pro Leu Gln Thr Ala Ser Leu Ser Ser			
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Gly Gln Leu Pro Pro Leu Leu Thr Pro Thr Glu Pro Ser Ser Pro Pro			
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Pro Cys Pro Pro Val Leu Thr Val Ala Thr Pro Pro Pro Pro Leu Leu			
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cca acc gtc cct ctc tcc cac ccc tct tct gat gcc tcc cct cag cag			3150
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Cys Pro Ser Pro Phe Ser Asn Thr Thr Ala Gln Ser Pro Leu Pro Ile			
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Leu Ser Pro Thr Val Ser Pro Ser Pro Ser Pro Ile Pro Pro Val Glu			
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cca ctt atg tct gct gct tcc cct ggt ccc cca aca ctt tct tcc tcc			3294
Pro Leu Met Ser Ala Ala Ser Pro Gly Pro Pro Thr Leu Ser Ser Ser			
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Ser Ser Ser Ser Phe Pro Ser Ser Ser Cys Ser Ser Thr Ser			
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Pro Ser Pro Pro Leu Ser Ala Val Ser Ser Val Val Ser Ser Gly			
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Asp Asn Leu Glu Ala Ser Leu Pro Ala Val Thr Phe Lys Gln Glu Glu			
1080	1085	1090	
tca gag agt gaa ggt ctg aaa ccc aag gaa gag gcc cca cct gca ggg			3486
Ser Glu Ser Glu Gly Leu Lys Pro Lys Glu Ala Pro Pro Ala Gly			
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Gly Gln Ser Val Val Gln Glu Thr Phe Ser Lys Asn Phe Ile Cys Asn			
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gtc tgt gaa tcg cct ttt ctt tcc att aaa gac cta acc aaa cat tta			3582
Val Cys Glu Ser Pro Phe Leu Ser Ile Lys Asp Leu Thr Lys His Leu			
1130	1135	1140	

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Ser Val His Ala Glu Glu Trp Pro Phe Lys Cys Glu Phe Cys Val Gln	
1145 1150 1155	
ctg ttt aag gtt aag act gat cta tca gag cat cga ttt ctg ctt cat	3678
Leu Phe Lys Val Lys Thr Asp Leu Ser Glu His Arg Phe Leu Leu His	
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ggg gtt gga aat atc ttt gtg tgt tct gta tgt aag aaa gaa ttt gcc	3726
Gly Val Gly Asn Ile Phe Val Cys Ser Val Cys Lys Lys Glu Phe Ala	
1175 1180 1185 1190	
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Phe Leu Cys Asn Leu Gln Gln His Gln Arg Asp Leu His Pro Asp Glu	
1195 1200 1205	
gta tgc aca cac cac gag ttt gaa agt ggg acc ctg agg ccc cag aac	3822
Val Cys Thr His His Glu Phe Glu Ser Gly Thr Leu Arg Pro Gln Asn	
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Lys Asp Pro Asp Val Arg Leu Gly Leu Asn Gln His Tyr Pro Ser Phe	
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aaa cct cct cca ttt cag tac cac cat cga aac cct atg ggg ata ggg	4062
Lys Pro Pro Pro Phe Gln Tyr His His Arg Asn Pro Met Gly Ile Gly	
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Val Thr Ala Thr Asn Phe Thr Thr His Asn Ile Pro Gln Thr Phe Thr	
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act gcc atc cgc tgc aca aag tgt ggg aag ggc gtc gac aat atg cct	4158
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Ala Phe Ser Cys Pro Lys Lys Pro Leu Ser Pro Ser Lys Arg Lys Val	
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Glu Asp Ser Ser Ala Arg His Glu Leu Lys Asp Phe Ser Tyr Ser Leu			
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Phe Leu Lys Glu			
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aaaaaaaaaaa aaaaaaaaa

6171

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35 40 45
Ile Leu Lys Gly Lys Lys Phe Gly Pro Phe Val Gly Asp Lys Lys Lys
50 55 60
Arg Ser Gln Val Arg Asn Asn Val Tyr Met Trp Glu Val Tyr Tyr Pro
65 70 75 80
Asn Leu Gly Trp Met Cys Ile Asp Ala Thr Asp Pro Glu Lys Gly Asn
85 90 95
Trp Leu Arg Tyr Val Asn Trp Ala Cys Ser Gly Glu Glu Gln Asn Leu
100 105 110
Phe Pro Leu Glu Ile Asn Arg Ala Ile Tyr Tyr Lys Thr Leu Lys Pro
115 120 125
Ile Ala Pro Gly Glu Glu Leu Leu Val Trp Tyr Asn Gly Glu Asp Asn
130 135 140
Pro Glu Ile Ala Ala Ile Glu Glu Glu Arg Ala Ser Ala Arg Ser
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Lys Arg Ser Ser Pro Lys Ser Arg Arg Gly Lys Lys Lys Ser His Glu
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Asn Lys Asn Lys Gly Ile Arg Thr His Pro Thr Gln Leu Lys Ala Ser
180 185 190
Glu Leu Asp Ser Thr Phe Ala Asn Met Arg Gly Ser Ala Glu Gly Pro
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Lys Glu Glu Asp Glu Arg Pro Leu Ala Ser Ala Pro Glu Gln Pro Ala
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Pro Leu Pro Glu Val Gly Asn Gln Asp Ala Val Pro Gln Val Ala Ile
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Pro Leu Pro Ala Cys Glu Pro Gln Pro Glu Val Asp Gly Lys Gln Glu
245 250 255
Val Thr Asp Cys Glu Val Asn Asp Val Glu Glu Glu Leu Glu Glu
260 265 270
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Val Glu Glu Ala Asp Met Pro Asn Glu Ser Ser Ala Lys Glu Pro Glu
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Ile Arg Cys Glu Glu Lys Pro Glu Asp Leu Leu Glu Glu Pro Gln Ser
305 310 315 320
Met Ser Asn Glu Ala Arg Glu Asp Ser Pro Asp Val Thr Pro Pro Pro
325 330 335
His Thr Pro Arg Ala Arg Glu Glu Ala Asn Gly Asp Val Leu Glu Thr
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Phe Met Phe Pro Cys Gln His Cys Glu Arg Lys Phe Ala Thr Lys Gln

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Cys Lys Lys Val Phe Gly Thr His Thr Asn Met Arg Arg His Gln Arg		
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Gln Asn Val Tyr Val Pro Ser Thr Glu Pro Glu Glu Gly Glu Thr		
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Asn Tyr Tyr Ile Asp Gly Lys Ile Gln Thr Asn Ser Ser Thr Ser Asn		
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Cys Asp Val Ile Glu Met Glu Ser Asn Ser Ala His Leu Tyr Gly Ile		
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Asp Leu His Pro Asp Glu Val Cys Thr His His Glu Phe Glu Ser Gly

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Ser Ser His Ile Cys Pro Tyr Cys Asp Arg Glu Phe Thr Tyr Ile Gly		
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Ser Leu Asn Lys His Ala Ala Phe Ser Cys Pro Lys Lys Pro Leu Ser		
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Pro Ser Lys Arg Lys Val Ser His Ser Ser Lys Lys Gly Gly His Ala		
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Lys Thr Arg Ala Arg Ser Thr Gly Pro Ala Gln Ala Ser Leu Pro Ser		
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Ser Ser Phe Arg Ser Arg Gln Asn Val Lys Phe Ala Ala Ser Val Lys		
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Lys Ser His Ser Ala Gln Leu Ser Ser Lys Ser Ser Arg Gly Leu His		
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Val Arg Val Gln Lys Ser Lys Ala Val Ile Gln Ser Lys Thr Ala Leu		
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Met Asn Gln Asn Thr Thr Glu Pro Val Ala Ala Thr Glu Thr Leu Ala
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Glu Val Pro Glu His Val Leu Arg Gly Leu Pro Glu Glu Val Arg Leu
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Phe Pro Ser Ala Val Asp Lys Thr Arg Ile Gly Val Trp Ala Thr Lys
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Pro Ile Leu Lys Gly Lys Phe Gly Pro Phe Val Gly Asp Lys Lys
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Lys Arg Ser Gln Val Lys Asn Asn Val Tyr Met Trp Glu Val Tyr Tyr
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100 105 110

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Leu Phe Pro Leu Glu Ile Asn Arg Ala Ile Tyr Tyr Lys Thr Leu Lys
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Ser Glu Pro Asp Phe Thr Ser Ala Asn Met Arg Asp Ser Ala Glu Gly
195 200 205

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Pro Lys Glu Asp Glu Glu Lys Pro Ser Ala Ser Ala Leu Glu Gln Pro
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ttt aca acc aaa cag ggg ctt gag cgt cac atg cat atc cat ata tcc Phe Thr Thr Lys Gln Gly Leu Glu Arg His Met His Ile His Ile Ser	370	375	380	1272	
acc gtc aat cat gct ttc aaa tgc aag tac tgt ggg aaa gcc ttt ggc Thr Val Asn His Ala Phe Lys Cys Lys Tyr Cys Gly Lys Ala Phe Gly	385	390	395	400	1320
aca cag att aac cgg cgg cga cat gag cgg cgc cat gaa gca ggg tta Thr Gln Ile Asn Arg Arg Arg His Glu Arg Arg His Glu Ala Gly Leu	405	410	415	1368	
aag cgg aaa ccc agc caa aca cta cag ccg tca gag gat ctg gct gat Lys Arg Lys Pro Ser Gln Thr Leu Gln Pro Ser Glu Asp Leu Ala Asp	420	425	430	1416	
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ccc agt ctt ggg cca gac tgt ctg atc atg aat tca gag aag gct tcc Pro Ser Leu Gly Pro Asp Cys Leu Ile Met Asn Ser Glu Lys Ala Ser	450	455	460	1512	
caa gac aca ata aat tct tct gtc gta gaa gag aat ggg gaa gtt aaa Gln Asp Thr Ile Asn Ser Ser Val Val Glu Asn Gly Glu Val Lys	465	470	475	480	1560
gaa ctt cat ccg tgc aaa tat tgt aaa aag gtt ttt gga act cat act Glu Leu His Pro Cys Lys Tyr Cys Lys Val Phe Gly Thr His Thr	485	490	495	1608	
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																1015
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																1150
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1170

1175

1180

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Pro Ile Ala Pro Gly Glu Glu Leu Leu Val Trp Tyr Asn Gly Glu Asp
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